I Claim:

1. A fuel processing system, comprising:

a reforming region containing at least one reforming catalyst bed and adapted to receive a vaporized feed stream comprising water and methanol;

means for heating the reforming region to a temperature in the range of approximately 300-500° C;

a catalyst within the at least one reforming catalyst bed and adapted to catalyze the formation of a mixed gas stream comprising hydrogen gas and other gases by steam reforming of the feed stream, wherein the catalyst is non-pyrophoric, contains less than approximately 5 wt% copper oxide, is adapted to catalyze the formation of the mixed gas stream from the feed stream, and has an initial activity and a second activity after at least 1000 hours of use that is at least 75% of the initial activity; and

a separation region adapted to receive the mixed gas stream and to separate the mixed gas stream into a product hydrogen stream and a byproduct stream, wherein the product hydrogen stream has at least one of a greater concentration of hydrogen gas than the mixed gas stream and a reduced concentration of at least one component of the other gases than the mixed gas stream, wherein the byproduct stream contains at least one of a lower concentration of hydrogen gas then the mixed gas stream and a greater concentration of at least one component of the other gases than the mixed gas stream.

2. The system of claim 1, wherein the catalyst contains less than 3 wt% copper oxide.

3. The system of claim 2, wherein the catalyst does not contain copper oxide.

4. The system of claim 1, wherein the catalyst contains active components of which zinc oxide forms a majority component.

5. The system of claim 4, wherein the catalyst further comprises chromium oxide.

6. The system of claim 4, wherein the catalyst further comprises calcium aluminate.

7. The system of claim 1, wherein the catalyst further comprises a high temperature methanol synthesis catalyst.

8. The system of claim 1, wherein the catalyst further comprises a high temperature shift catalyst that contains iron oxide.

9. The system of claim 1, wherein the catalyst is not adapted to produce methane during the production of the mixed gas stream.

10. The system of claim 1, wherein the catalyst is adapted to not be sintered during production of the mixed gas stream.

11. The system of claim 1, wherein after 2000 hours of use, the second activity is at least 75% of the initial activity.

12. The system of claim 11, wherein after 5000 hours of use, the second activity is at least 75% of the initial activity.

13. The system of claim 1, wherein the reforming catalyst bed is an air-permeable catalyst bed that does not require shielding or isolation from air to prevent air from contacting the catalyst.

14. The system of claim 1, wherein the separation region includes at least one hydrogen-selective membrane having a first surface that is exposed to the mixed gas stream, wherein the product hydrogen stream is formed from at least a portion of the mixed gas stream that permeates through the at least one hydrogen-selective membrane, and further wherein the byproduct stream is formed from at least a portion of the mixed gas stream that does not pass through the at least one hydrogen-selective membrane.

15. The system of claim 14, wherein the at least one hydrogen-selective membrane is formed from an alloy comprising palladium and copper.

16. The system of claim 1, wherein the separation region includes at least one pressure swing adsorption system adapted to receive under pressure the mixed gas stream.

17. The system of claim 1, wherein the separation region includes at least one methanation catalyst bed.

18. The system of claim 1, in combination with a fuel cell stack adapted to receive an oxidant stream and at least a portion of the product hydrogen stream and to produce an electric current therefrom.

19. In a steam reformer adapted to produce via a steam reforming reaction at a temperature in the range of 300-500° C a mixed gas stream comprising hydrogen gas and other gases from a feed stream comprising water and methanol, the improvement comprising: non-pyrophoric catalytic means for steam reforming the feed stream into the mixed gas stream.

20. The steam reformer of claim 19, wherein the catalytic means is further for not producing methane during the production of the mixed gas stream.

21. The steam reformer of claim 19, wherein the catalytic means is adapted to not be sintered during production of the mixed gas stream.

22. The steam reformer of claim 19, wherein the catalytic means has an initial activity and a second activity after at least 2000 hours of use that is at least 75% of the initial activity.

23. The steam reformer of claim 22, wherein after 5000 hours of use, the second activity is at least 75% of the initial activity.

24. The steam reformer of claim 19, wherein the catalytic means comprises zinc oxide.

25. The steam reformer of claim 24, wherein the catalytic means does not contain copper oxide.

26. The steam reformer of claim 24, wherein the catalytic means further comprises chromium oxide.

27. The steam reformer of claim 24, wherein the catalytic means further comprises calcium aluminate.

28. The steam reformer of claim 19, wherein the catalytic means comprises a high temperature methanol synthesis catalyst.

29. The steam reformer of claim 19, wherein the catalytic means comprises a high temperature shift catalyst that contains iron oxide.

30. The steam reformer of claim 19, in combination with a separation region adapted to receive the mixed gas stream and to separate the mixed gas stream into a product hydrogen stream and a byproduct stream, wherein the product hydrogen stream has at least one of a greater concentration of hydrogen gas than the mixed gas stream and a reduced concentration of at least one component of the other gases than the mixed gas stream, wherein the byproduct stream contains at least one of a lower concentration of hydrogen gas than the mixed gas stream and a greater concentration of at least one component of the other gases than the mixed gas stream.

31. The steam reformer of claim 30, in combination with a fuel cell stack adapted to receive an oxidant stream and at least a portion of the product hydrogen stream and to produce an electric current therefrom.

32. In a steam reformer adapted to produce via a steam reforming reaction at a temperature of 300-500° C a mixed gas stream comprising hydrogen gas from a feed stream comprising water and methanol, the improvement comprising: catalytic means for steam reforming the feed stream into the mixed gas stream without the production of methane.

33. The steam reformer of claim 32, wherein the catalytic means has an initial activity and a second activity after at least 2000 hours of use that is at least 75% of the initial activity.

34. The steam reformer of claim 32, wherein the catalytic means comprises zinc oxide.

35. The steam reformer of claim 34, wherein the catalytic means does not contain copper oxide.

36. The steam reformer of claim 34, wherein the catalytic means further comprises chromium oxide.

37. The steam reformer of claim 34, wherein the catalytic means further comprises calcium aluminate.

38. The steam reformer of claim 32, wherein the catalytic means comprises a high temperature methanol synthesis catalyst.

39. The steam reformer of claim 32, wherein the catalytic means comprises a high temperature shift catalyst that contains iron oxide.

40. The steam reformer of claim 32, in combination with a separation region adapted to receive the mixed gas stream and to separate the mixed gas stream into a product hydrogen stream and a byproduct stream, wherein the product hydrogen stream has at least one of a greater concentration of hydrogen gas than the mixed gas stream and a reduced concentration of at least one component of the other gases than the mixed gas stream, wherein the byproduct stream contains at least one of a lower concentration of hydrogen gas than the mixed gas stream and a greater concentration of at least one component of the other gases than the mixed gas stream.

41. The steam reformer of claim 40, in combination with a fuel cell stack adapted to receive an oxidant stream and at least a portion of the product hydrogen stream and to produce an electric current therefrom.